

Appln. No. 10/523,920  
Amd. dated September 9, 2010  
Reply to Office Action of January 27, 2010  
and Advisory Action of April 29, 2010

### **REMARKS**

The Office Action of January 27 and the Advisory Action mailed April 29, 2010, have been carefully studied. Claims 1, 2, 6, 7, 21 and 24-28 currently appear in this application. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicants respectfully request favorable reconsideration and formal allowance of the claims.

### **Amendments to the Specification**

The specification has been amended to correct an inadvertent typographical error in Experiment 8 on page 30. The recitation "An aqueous substrate solution containing 5% of L-ascorbic acid, 21% of **"PINEDEX #1"**, a partial starch hydrolyzate commercialized by Matsutani Chemical Industry Co., Ltd. Of Osaka, Japan is a translation **error** and has been corrected to "An aqueous substrate solution of L-ascorbic acid, 21% of **"PINEDEX #100"**". **Attached hereto is as copy of page 31 of the International Publication WO 2004/013344 A1 which recites as follows:**

"L - アスコルビン酸を 9 %、澱粉部分分解物 ( 商品名 『パインデックス # 100 』、松谷化学株式会社製造を 2 1 %"

Appln. No. 10/523,920  
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Please note that “パインデックス# 100” means “PINEDEX #100”.

Therefore it is clear that the recitation “PINEDEX #1” at page 30, line 1 of the English text is a translation error of -- PINEDEX #100 --.

The Dextrose Equivalent of “PINEDEX #1” is 2-5; the DE of “PINEDEX #100” is  $8 \pm 1$ . This is stated in the copy of the pamphlet of “PINE-DEX” by Matsutani Chemical Industry, Co., Ltd. that was submitted with the amendment filed July 8, 2009.

#### **Claim Amendments**

Claim 1 has been amended to recite that the  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme is obtained from *Arthrobacter globiformis*. Support for this amendment can be found in the specification as filed at page 11, lines 11-16.

#### **Interview Summary**

Applicant's attorney wishes to thank Examiner Barnhart for the courtesies extended during the telephone interview of August 24, 2010. Examiner Barnhart noted that the Advisory Action merely confirmed that there did not appear to be support for “DE less than 10.” However, it will be demonstrated below that there is such support.

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### **Art Rejections**

Claims 1, 2, 6 and 21 are rejected under 35 U.S.C. §102(b) as anticipated or, in the alternative, under 35 U.S.C. §103(a) as obvious, over Yamamoto et al., US 5,137,723. This rejection is respectfully traversed.

Submitted herewith is a declaration by Dr. NISHIMOTO in which additional experiments were conducted to demonstrate that the enzyme used in the herein claimed process is unexpectedly superior to the RIAGase of Yamamoto. Dr. NISHIMOTO conducted further experiments using three kinds of liquefied starch having a dextrose equivalent of 2-5, 4.1 and  $8 \pm 1$ . Since the liquefied starch used in the process of claim 1 has a DE of "less than 10", it is respectfully submitted that the variety of dextrose equivalents in the liquefied starch used in the new experiments is sufficiently broad to cover the liquefied starch as recited in claim 1. As shown in this declaration,  $\alpha$ -isomaltosyl glucosaccharide-forming enzyme in the presently claimed method is significantly different from the rat intestine  $\alpha$ -glucosidase (RIAGase) of Yamamoto, even when the three kinds of starch having dextrose equivalents ranging from 2 to 9 are used as a glucosyl donor.

### **Response to Advisory Action**

In the Advisory Action mailed April 29, 2010, the Examiner alleged that the proposed DE of "less than 10" was not recited in the specification, and that the working examples do not cover this range.

Experiments 7 and 8 of the specification as filed use "PINEDEX #1" and "PINEDEX #100", respectively, as a glucosyl donor. The specification has been corrected in Experiment 8 to conform to the recitation in the priority document that Example 8 used "PINEDEX #100" rather than #1. As noted above, the DE of "PINEDEX #100" is  $8 \pm 1$ . Therefore, it is respectfully submitted that the specification contains working examples of several glucosyl donors of different dextrose equivalents.

Furthermore, in Example 1 of the specification, "Nine parts by weight of dextrin (DE about 6)" was used, see page 32, line 19. In Example 3, "a liquefied starch solution with a DE of about four" was used, see page 35, line 24.

It is respectfully submitted that the Experiments and the Examples clearly cover a range of dextrose equivalents conforming to "DE of less than 10." Reconsideration and withdrawal of the rejection are respectfully requested.


In the claims, "the genus *Arthrobacter*" has been limited to "*Arthrobacter globiformis*." This amendment is made in response to the Examiner's comments that the remarks after final rejection do not properly address the issue of the breadth of *Arthrobacter* species that might yield the enzyme used in the herein claimed method. Support for this amendment can be found in the specification as filed at page 11, lines 11-14.

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In view of the above, it is respectfully submitted that the claims are  
now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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